Fertilizer Practice Packet

Name: ________________________________________

References:

<table>
<thead>
<tr>
<th>Fertilizer Grade</th>
<th>Fertilizer Name</th>
</tr>
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<tbody>
<tr>
<td>46-0-0</td>
<td>Urea (dry or liquid)</td>
</tr>
<tr>
<td>82-0-0</td>
<td>Anhydrous Ammonia</td>
</tr>
<tr>
<td>11-52-0</td>
<td>MAP – Mono-Ammonium Phosphate (Dry)</td>
</tr>
<tr>
<td>10-34-0</td>
<td>Liquid Ammonium Polyphosphate</td>
</tr>
<tr>
<td>18-46-0</td>
<td>DAP – Di-Ammonium Phosphate (Dry)</td>
</tr>
<tr>
<td>0-0-60</td>
<td>Potash (Dry or liquid)</td>
</tr>
<tr>
<td>21-0-0-24 (S)</td>
<td>AMS – Ammonium Sulfate</td>
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<table>
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<tr>
<th>Fertilizer</th>
<th>Price</th>
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<tr>
<td>Anhydrous Ammonia</td>
<td>$598 per ton</td>
</tr>
<tr>
<td>Urea</td>
<td>$380 per ton</td>
</tr>
<tr>
<td>UAN (28 – 0 – 0)</td>
<td>$215 per 1000 gallons</td>
</tr>
<tr>
<td>DAP</td>
<td>$490 per ton</td>
</tr>
<tr>
<td>Potash</td>
<td>$378 per ton</td>
</tr>
<tr>
<td>MAP (Monoammonium phosphate)</td>
<td>$505 per ton</td>
</tr>
<tr>
<td>AMS (Ammonium sulfate)</td>
<td>$350 per ton</td>
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How much nutrients are in fertilizer:

1. Jeff has a ton of UAN. How many pounds of nitrogen are in it?

2. How much K2O is in a 75 pound bag of 10 – 20 – 20?

3. Sally has 45 tons of AMS. How much sulfur is in 100 pounds of AMS?

4. Sally has 45 tons of AMS. How much sulfur is in 3 tons of AMS?

5. How much P2O5 is in 4 tons of MAP?
Determining how much fertilizer to apply given nutrients

1. You want 150 pounds of nitrogen applied per acre.
   a. How much anhydrous would you have to apply to hit this goal (lbs)?

   b. How much does this anhydrous cost per acre?

   c. How much urea would you have to apply to hit this goal (lbs)?

   d. How much does this urea cost per acre?

   e. How much DAP would you have to apply to hit this goal (lbs)?

   f. How much does this DAP cost per acre?

2. How much MAP do you have to apply to get 45 pounds of P2O5 per acre? How much will it cost for this MAP?

3. You want to put down 55 pounds of sulfur per acre. How much AMS do you apply? How much will it cost for this AMS?
Liquid Fertilizers determining values – use attached chart on liquid fertilizer densities

1. You want to apply 10 pounds of UAN per acre. How many gallons is this?

2. You want to apply 75 pounds of Liquid Ammonium Polyphosphate per acre. How many gallons is this?

3. You want to apply 30 pounds of nitrogen per acre. How many gallons of UAN should you apply per acre? How much will it cost to apply this to 1000 acres?

4. You want to apply 30 pounds of phosphorus (P2O5) per acre. How many gallons of Liquid Ammonium Polyphosphate do you put down per acre?

5. How much nitrogen is in 3000 gallons of UAN?

6. How much P2O5 is in 40 gallons of Liquid Ammonium Polyphosphate?

7. You want to apply 30 pounds of nitrogen per acre. How many gallons of UAN plus sulfur (28-0-0-55) should you apply per acre?

NOTE: Sometimes liquid fertilizer rate should be adjusted on temperature -- you will just refigure density
Cost of nutrient in product

1. What is the cost for 1 pound of nitrogen in:
   a. Urea

   b. Anhydrous

2. What is the cost for 1 pound of phosphorus in. Given the price of urea in the above problem.
   a. MAP
      i. Cost of the nitrogen in MAP - find $/ton MAP

      ii. Cost per 1 lb P2O5

   b. DAP
      i. Cost of the nitrogen in DAP - find $/ton DAP

      ii. Cost per 1 lb P2O5

3. Repeat number two but adjust the prices of MAP to $450/ton and DAP to $400/ton and a urea price of $0.50 per 1 pound of nitrogen
   a. MAP
      i. Cost of the nitrogen in MAP - find $/ton MAP

      ii. Cost per 1 lb P2O5

   b. DAP
      i. Cost of the nitrogen in DAP - find $/ton DAP

      ii. Cost per 1 lb P2O5
4. How much will it cost you to apply 20 pounds of P₂O₅ per acre on 1000 acres using DAP?

Analysis Questions

1. What is the analysis/grade of a mix of 2000 pounds of urea and 500 pounds of DAP?

2. What is the analysis/grade of a mix of 1000 pounds of urea, 200 pounds of AMS, and 200 pounds of MAP

3. What is the analysis/grade of a mix of 1000 pounds of urea, 200 pounds of potash, 200 pounds of AMS, and 100 pounds of DAP?
Beginning of soil tests – going from nutrient wanted to a blend

1. You want to apply 100 pounds of nitrogen and 20 pounds of P2O5 using Urea and DAP. How much of each fertilizer to you blend?

2. You want to apply 120 pounds of nitrogen, 10 pounds of P2O5, and 10 pounds of K2O using Urea, potash, and DAP. How much of each fertilizer to you blend?

3. You want to apply 90 pounds of nitrogen, 15 pounds of P2O5, and 10 pounds of sulfur using Urea, AMS, and DAP. How much of each fertilizer to you blend?

4. You want to apply 80 pounds of nitrogen, 9 pounds of P2O5, and 9 pounds of K2O using Urea, potash, and DAP. How much of each fertilizer to you blend?

Analysis to Blend

1. Katherine wants a blend of 34-0-0-18 (S). You will blend urea and AMS to get this. She wants 10 tons of the mix. How much of each fertilizer do you blend?

2. Brittnay wants to make a blend of 5-8-8. She will use Urea, potash and MAP. She wants 4 tons of the mix. How much of each fertilizer do you blend for her?
1. \[
\frac{1 \text{ ton UAN}}{1} \times \frac{2000 \text{ lbs UAN}}{1 \text{ ton UAN}} \times \frac{28 \text{ lbs N}}{100 \text{ lbs UAN}} = \frac{16 \text{ lbs N}}{1} = 560
\]

2. \[
\frac{75 \text{ lbs } K_2O}{1} \times \frac{20 \text{ lbs } K_2O}{100 \text{ lbs } 10-20-20} = \frac{16 \text{ lbs } K_2O}{1} = 15
\]

3. 45 tons AMS - Not needed

4. \[
\frac{3 \text{ ton AMS}}{1} \times \frac{2000 \text{ lbs AMS}}{1 \text{ ton AMS}} \times \frac{24 \text{ lbs S}}{100 \text{ lbs AMS}} = \frac{1440 \text{ lbs S}}{1}
\]

5. \[
\frac{4 \text{ tons MAP}}{1} \times \frac{2000 \text{ lbs MAP}}{1 \text{ ton MAP}} \times \frac{52 \text{ lbs } P_2O_5}{100 \text{ lbs MAP}} = \frac{4160 \text{ lbs } P_2O_5}{1}
\]
82.00 \ \text{lbs AA} \ \times \ \frac{100 \ \text{lbs AA}}{1 \ \text{acre}} \ \div \ \frac{16 \ \text{lbs AA}}{1 \ \text{acre}} = 182.9 \ \text{lbs AA} \\

b. \ \frac{182.9 \ \text{lbs AA}}{1 \ \text{acre}} \ \times \ \frac{1 \ \text{ton AA}}{2000 \ \text{lbs AA}} \ \times \ \frac{\$598}{1 \ \text{ton AA}} = \frac{\$54.69}{1 \ \text{acre}} \\

c. \ \frac{150 \ \text{lbs N}}{1 \ \text{acre}} \ \times \ \frac{100 \ \text{lbs urea}}{1 \ \text{lb N}} = 32608 \ \text{lbs urea} \\

d. \ \frac{326 \ \text{lbs urea}}{1 \ \text{acre}} \ \times \ \frac{1 \ \text{ton urea}}{2000 \ \text{lbs urea}} \ \times \ \frac{\$380}{1 \ \text{ton urea}} = \frac{\$61.94}{1 \ \text{acre}} \\

e. \ \frac{150 \ \text{lbs N}}{1 \ \text{acre}} \ \div \ \frac{18 \ \text{lbs N}}{1 \ \text{acre}} = 833.3 \ \text{lbs NO}_3 \\

f. \ \frac{833.3 \ \text{lbs NO}_3}{1 \ \text{acre}} \ \times \ \frac{1 \ \text{ton NO}_3}{2000 \ \text{lbs NO}_3} \ \times \ \frac{\$490}{1 \ \text{ton NO}_3} = \frac{\$264.17}{1 \ \text{acre}}
2. \[
\frac{4516 \text{ lb} \text{ P}_2\text{O}_5}{1 \text{ acre}} \times \frac{100 \text{ lb} \text{ MAP}}{1 \text{ ton MAP}} = \frac{86.5 \text{ lb} \text{ MAP}}{1 \text{ acre}}
\]

\[
\frac{86.5 \text{ lb} \text{ MAP}}{1 \text{ acre}} \times \frac{1 \text{ ton MAP}}{2000 \text{ lb} \text{ MAP}} \times \frac{\$505}{1 \text{ ton MAP}} = \frac{\$21.85}{1 \text{ acre}}
\]

3. \[
\frac{5516 \text{ lb} \text{ S}}{1 \text{ acre}} \times \frac{100 \text{ lb} \text{ AMS}}{24 \text{ lb} \text{ S}} = \frac{229.17 \text{ lb} \text{ AMS}}{1 \text{ acre}}
\]

\[
\frac{229.17 \text{ lb} \text{ AMS}}{1 \text{ acre}} \times \frac{1 \text{ ton AMS}}{2000 \text{ lb} \text{ AMS}} \times \frac{\$350}{1 \text{ ton AMS}} = \frac{\$40.10}{1 \text{ acre}}
\]
1. \[
\frac{10165 \text{ gal VAN}}{1 \text{ acre}} \times \frac{10.6 \text{ lbs VAN}}{1 \text{ gal VAN}} = 0.943 \text{ gal VAN per acre}
\]

2. \[
\frac{75165 \text{ LAP}}{1 \text{ acre}} \times \frac{1 \text{ gal LAP}}{11.65 \text{ lbs LAP}} = 6.437 \text{ gal LAP per acre}
\]

3. \[
\frac{30165 \text{ N}}{1 \text{ acre}} \times \frac{100 \text{ lbs VAN}}{165 \text{ N}} \times \frac{1 \text{ gal VAN}}{10.6 \text{ lbs VAN}} = 0.001 \text{ gal VAN per acre}
\]

4. \[
\frac{30165 \text{ P}_{205}}{1 \text{ acre}} \times \frac{100 \text{ lbs}}{94.65 \text{ N}} \times \frac{1 \text{ gal 10-34}}{11.65 \text{ lbs}} = 7.57 \text{ gal 10-34 per acre}
\]
5. \[
\frac{3000 \text{ gal VAN}}{1} \times \frac{10.6165 \text{ lbs}}{1 \text{ gal}} \times \frac{28 \text{ lbs N}}{100 \text{ lbs VAN}} = \boxed{890.41 \text{ lbs N}}
\]

6. \[
\frac{40 \text{ gal AP}}{1} \times \frac{11.65165 \text{ lbs}}{1 \text{ gal AP}} \times \frac{34 \text{ lbs P}_2\text{O}_5}{100 \text{ lbs AP}} = \boxed{158.44 \text{ lbs P}_2\text{O}_5}
\]

7. \[
\frac{30 \text{ lbs N}}{1 \text{ acre}} \times \frac{100 \text{ lbs VAN}}{28165 \text{ lbs N}} \times \frac{1 \text{ gal VAN-S}}{10.76 \text{ lbs VAN}} = \boxed{9.96 \text{ gal VAN}}
\]
1. \[
\frac{\$380}{\text{ton A}} \times \frac{1 \text{ ton A}}{2000 \text{ lbs}} \times \frac{100 \text{ lbs A}}{4616 \text{ lbs N}} = \frac{\$0.413}{1 \text{ lb N}}
\]

2. \[
\frac{\$598}{\text{ton A}} \times \frac{1 \text{ ton A}}{2000 \text{ lbs}} \times \frac{100 \text{ lbs A}}{8216 \text{ lbs N}} = \frac{\$0.364}{1 \text{ lb N}}
\]

2. A. \[
\frac{2000}{\text{lb MAP}} \times \frac{1116 \text{ lb N}}{100 \text{ lbs}} \times \frac{\$0.413}{1 \text{ lb N}} = \$90.86
\]

B. \[
\frac{2000 \text{ lbs}}{\text{lb MAP}} \times \frac{1816 \text{ lb N}}{100 \text{ lbs}} \times \frac{\$0.413}{1 \text{ lb N}} = \$148.68
\]
2a ii \( \frac{8505}{1 \text{ ton MAP}} - \frac{90.86}{1 \text{ ton MAP}} = \frac{8414.14}{1 \text{ ton MAP}} \)

\[ \frac{1 \text{ ton MAP}}{2000 \text{ lbs MAP}} \times \frac{100 \text{ lbs MAP}}{52 \text{ lbs } P_2O_5} \times \frac{414.14}{1 \text{ ton MAP}} = \frac{0.40}{16 \text{ lbs } P_2O_5} \]

26 ii \( \frac{490}{1 \text{ ton DAP}} - \frac{148.68}{1 \text{ ton DAP}} = \frac{341.32}{1 \text{ ton DAP}} \)

\[ \frac{100 \text{ lbs DAP}}{46 \text{ lbs } P_2O_5} \times \frac{1 \text{ ton DAP}}{2000 \text{ lbs DAP}} \times \frac{341.32}{1 \text{ ton DAP}} = \frac{0.37}{16 \text{ lbs } P_2O_5} \]
3. \[ \frac{2000 \text{ lbs}}{1 \text{ ton}} \times \frac{116.5 \text{ N}}{100 \text{ lbs}} \times \frac{\$50}{116 \text{ N}} = \frac{\$110}{1 \text{ ton}} \]

\[ 450 - \$110 = \$340 \]

\[ \frac{\$340}{1 \text{ ton MAP}} \times \frac{100 \text{ lbs MAP}}{2000 \text{ lbs MAP}} = \frac{\$0.33}{16 \text{ P}_2\text{O}_5} \]

6. \[ \frac{2000 \text{ lbs DAP}}{1 \text{ ton DAP}} \times \frac{18165 \text{ N}}{100 \text{ lbs DAP}} \times \frac{\$0.50}{116 \text{ N}} = \frac{\$180}{1 \text{ ton DAP}} \]

\[ 400 - \$180 = \$220 \]

\[ \frac{\$220}{1 \text{ ton OAP}} \times \frac{1 \text{ ton DAP}}{2000 \text{ lbs DAP}} \times \frac{100 \text{ lbs DAP}}{46165 \text{ N}} \times \frac{\$0.239}{16 \text{ P}_2\text{O}_5} \]
Analysis

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<th></th>
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<th>P</th>
<th>K</th>
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<tr>
<td>weight</td>
<td>2000</td>
<td>920</td>
<td>-</td>
</tr>
<tr>
<td>OAP</td>
<td>500</td>
<td>90</td>
<td>230</td>
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| total  | 2500 | 1010| 230  | 0

\[
\begin{align*}
\text{work} & = \frac{2000 \text{ lbs}}{\text{acre}} \times \frac{46.165 N}{100 \text{ lbs}} \\
\text{work} & = \frac{18.163 P_{20\text{5}}}{100 \text{ lbs}}
\end{align*}
\]

New totals

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<th>P</th>
<th>K</th>
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<td>1010</td>
<td>230</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>2500</td>
<td>2500</td>
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0.409  0.092

\[
40 - 9. - 0
\]
2.

\[
\begin{array}{c|cccc}
\text{N} & 16s & P & K & S \\
16s & 1000 & 460 & - & - \\
1000 & 200 & 42 & - & 48 \\
200 & 22 & 104 & - & - \\
\hline
\text{MAP} & 1400 & 524 & 104 & 48 \\
\hline
\text{Total} & 1400 & 524 & 104 & 48
\end{array}
\]

\[
\frac{1000\text{N}}{\text{wax}} \times \frac{46\text{SN}}{100\text{N}} = \frac{200\text{AMS}}{\text{AMS}} \times \frac{21\text{SN}}{100\text{AMS}}
\]

\[
\frac{200\text{AMS}}{\text{AMS}} \times \frac{24\text{SN}}{100\text{AMS}}
\]

\[
\frac{524\text{N}}{1400} \times \frac{104\text{SN}}{1400} = 0.37 \times 0.07 = 0.03
\]

\[37 - 7 - 0 - 3\]
### Table

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<th>16s</th>
<th>N</th>
<th>P</th>
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<td>urea</td>
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<td>42</td>
<td>0</td>
<td>0</td>
<td>48</td>
<td>-</td>
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**1500**

**520 46 120 48**

### Calculation

\[
\begin{align*}
\text{N} & \times \frac{200 \text{ kg Pot} \times 60 \text{ kg K2O}}{100 \text{ kg Pot}} \\
\text{work see #2}
\end{align*}
\]

\[
\begin{align*}
\text{16s DAP} & \times \frac{18 \text{ kg N}}{100 \text{ kg DAP}} \\
\text{work see #2}
\end{align*}
\]

\[
\begin{align*}
\text{1500} & \times \frac{46 \text{ kg K}}{1500} \\
\text{1500} & \times \frac{48 \text{ kg S}}{1500}
\end{align*}
\]

**.346 .03 .08 .03**

**34 - 3 - 8 - 3**
Begin Soil Test

I. A. Start w/ right N-P-K-S

Start w/ P - How much DAP?

\[
\frac{2016 \text{ lbs } \text{P}_2\text{O}_5}{42 \text{ lbs } \text{P}_2\text{O}_5} \times \frac{100 \text{ lbs } \text{DAP}}{1} = 44 \text{ lbs } \text{DAP}
\]

B. How much N is in DAP?

\[
\frac{44 \text{ lbs } \text{DAP}}{1} \times \frac{18 \text{ lbs } \text{N}}{1} = 7.92 \text{ lbs } \text{N}
\]

C. How much N needed?

\[
100 \text{ lbs} - 7.92 \text{ lbs } \text{N} = 92.08 \text{ lbs } \text{N}
\]

D. How much Urea?

\[
\frac{92.08 \text{ lbs } \text{N}}{46 \text{ lbs } \text{N}} \times \frac{100 \text{ lbs } \text{Urea}}{1} = 201 \text{ lbs } \text{Urea}
\]

201 lbs Urea + 44 lbs DAP
2. A. Start on Right NPK

How much Potash need?

\[
\frac{10 \text{ lbs} \ K_2O}{1} \times \frac{100 \text{ lbs} \ \text{Pot}^+}{60 \text{ lbs} \ K_2O} = 17.163 \text{ lbs Potos}^+
\]

B. Next is \(P_2O_5\) - How much DAP?

\[
\frac{10 \text{ lbs} \ P_2O_5}{1} \times \frac{100 \text{ lbs} \ \text{DAP}}{46 \text{ lbs} \ P_2O_5} = 22.163 \text{ lbs DAP}
\]

C. How much \(N\) is in DAP?

\[
\frac{22.163 \text{ lbs DAP}}{1} \times \frac{18 \text{ lbs} \ N}{10 \text{ lbs} \ \text{DAP}} = 3.92 \text{ lbs} \ N
\]

D. How much \(N\) need?

\[
120 \text{ lbs} \ N - 3.76 \text{ lbs} \ N = 116.24 \text{ lbs} \ N
\]

E. How much urea

\[
\frac{116.04 \text{ lbs} \ N}{1} \times \frac{100 \text{ lbs} \ \text{Urea}}{46 \text{ lbs} \ N} = 253 \text{ lbs Urea}
\]
3. Rich NPK 50 S

A. How much sulfur = AMS

\[
\frac{10165}{1} \times \frac{100165 \text{ AMS}}{24165} = 42165 \text{ AMS}
\]

B. How much N in AMS

\[
\frac{42165 \text{ AMS}}{1} \times \frac{21165 \text{ N}}{100165 \text{ AMS}} = 8.75165 \text{ N}
\]

C. How much DAP? P

\[
\frac{15165 \text{ P2O5}}{1} \times \frac{100165 \text{ DAP}}{46165 \text{ P2O5}} = 33165 \text{ DAP}
\]

D. How much N in DAP

\[
\frac{33165 \text{ DAP}}{1} \times \frac{18165 \text{ N}}{100165 \text{ DAP}} = 5.94165 \text{ N}
\]

E. How much N?

\[
90 - 8.75 - 5.94 = 75.31165 \text{ N}
\]

F. How much urea?

\[
\frac{75.31165 \text{ N}}{1} \times \frac{100165 \text{ urea}}{46165 \text{ N}} = 164165 \text{ urea}
\]
4. A start @ Right NPK sok
   How much Potash?
   \[ \frac{9.16 \text{ lbs } K_2O}{1 \text{ lbs } K_2O} \times \frac{100 \text{ lbs Pot}}{60 \text{ lbs } K_2O} = 15 \text{ lbs Potash} \]

B. Now How much DAP
   \[ \frac{9.16 \text{ lbs } P_2O_5}{1 \text{ lbs } P_2O_3} \times \frac{100 \text{ lbs DAP}}{46 \text{ lbs } P_2O_5} = 20 \text{ lbs } DAP \]

C. How much N in DAP?
   \[ \frac{20 \text{ lbs DAP}}{1 \text{ lbs DAP}} \times \frac{18 \text{ lbs } N}{100 \text{ lbs } DAP} = 0.36 \text{ lbs } N \]

D. How much N?
   \[ 80 - 0.36 = 79.64 \text{ lbs } N \]

E. How much urea?
   \[ \frac{79.64 \text{ lbs } N}{1 \text{ lbs } N} \times \frac{100 \text{ lbs } Urea}{46 \text{ lbs } N} = 167.16 \text{ lbs } Urea \]
A. Start Nutrient Eurtheast right - How much do you need?
\[
\frac{10 \text{ tons Blend}}{1 \text{ ton blend}} \times \frac{2000 \text{ tons Blend}}{1 \text{ ton blend}} \times \frac{18165 \text{ S}}{100 \text{ lbs Blend}} = \frac{36000 \text{ lbs S}}{1}
\]

B. Next How much AMS gives us this?
\[
\frac{36000 \text{ lbs S}}{1} \times \frac{100 \text{ lbs AMS}}{24 \text{ lbs}} = \frac{15000 \text{ lbs AMS}}{1}
\]

C. How Much other stuff is in AMS - N
\[
\frac{15000 \text{ lbs AMS}}{1} \times \frac{21165 \text{ N}}{100 \text{ lbs AMS}} = \frac{3150 \text{ lbs N}}{1}
\]

D. How much N Do we need?
\[
\frac{10 \text{ ton blend}}{1} \times \frac{2000 \text{ tons blend}}{1 \text{ ton blend}} \times \frac{34165 \text{ lbs N}}{100 \text{ lbs Blend}} = \frac{68000 \text{ lbs N}}{1}
\]
1. How much more N do we need?

\[ 6800 \text{lbsN} - 3150 \text{lbsN} = 3650 \text{lbsN} \]

(0) \quad (C)

6. How much urea do we need?

\[
\frac{3650 \text{ lbsN}}{1} \times \frac{100 \text{ lbs urea}}{46 \text{ lbs}} = \frac{7935 \text{ lbs urea}}{N}
\]

So I will blend

\[ 7935 \text{ lbs} + 15000 \text{ lbs urea AMS} \]
Analysis to blend #2 5-8-8 w/ urea MAP Potash

A. Start @ 8

\[
4 \text{ tons Blend} \times \frac{2000 \text{ lbs}}{1 \text{ ton Blend}} \times \frac{8 \text{ lbs K}_2\text{O}}{100 \text{ lbs Blend}} = \frac{640 \text{ lbs K}_2\text{O}}{1}
\]

B. Find how much Potash need K_2O

\[
\frac{640 \text{ lbs K}_2\text{O}}{1} \times \frac{100 \text{ lbs Potash}}{60 \text{ lbs K}_2\text{O}} = \frac{1067 \text{ lbs Potash}}{1}
\]

C. No other stuff in potash move to P_2O_5

\[
4 \text{ tons Blend} \times \frac{2000 \text{ lbs}}{1 \text{ ton Blend}} \times \frac{8 \text{ lbs P}_2\text{O}_5}{100 \text{ lbs Blend}} = \frac{640 \text{ lbs P}_2\text{O}_5}{1}
\]

D. How much MAP need for P_2O_5

\[
\frac{640 \text{ lbs P}_2\text{O}_5}{1} \times \frac{100 \text{ lbs MAP}}{52 \text{ lbs P}_2\text{O}_5} = \frac{1231 \text{ lbs MAP}}{1}
\]
5. How much N is in MAP?

\[
\frac{12.31\text{ lbs MAP}}{1} \times \frac{11\text{ lbs N}}{100\text{ lbs MAP}} = 135.4\text{ lbs N}
\]

6. How much N?

\[
\frac{4\text{ tons blend}}{1} \times \frac{200\text{ lbs blend}}{1\text{ ton blend}} \times \frac{5\text{ lbs N}}{100\text{ lbs blend}} = 400\text{ lbs N}
\]

6. How much N still need?

\[
400 - 135.4 = 264.6\text{ lbs N}
\]

\( F \) \( 3 \)

7. How much urea need?

\[
\frac{264.6\text{ lbs N}}{100\text{ lbs urea}} \times \frac{1067\text{ lbs}}{1\text{ lbs}} = 576\text{ lbs urea}
\]

Blend

576 lbs
Urea
1231 lbs
MAP
1067 lbs
Potash